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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,911	08/22/2003	Hisatsugu Kurita	047297-0137	8557
22428	7590	08/18/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			KORNAKOV, MICHAEL	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/645,911

**Applicant(s)**

KURITA ET AL.

**Examiner**

Michael Kornakov

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicants' amendment and remarks, dated 06/10/2005, have overcome objections to drawings and claims and the rejection of claims 1-4 under 35 USC 102(b) as being anticipated by JP10- 256211 and the said rejections and objections are withdrawn. The introduction of new claims 5-10 is noticed.
2. Claims 1- 10 are currently pending and examined on the merits.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recited in claim 7 "the cleaning method according to claim 6, **further consisting essentially** of the step of oxidizing with ozonated water..." constitutes an indefinite subject matter, because it is not clear whether an additional cleaning step or the sequence of cleaning steps, already provided by the parent claim 6 is recited. Appropriate clarification and/or correction is required.
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Peng et al (U.S. 2004/0127032).

Peng teaches a process for cleaning a silicon surface, such as a surface of mono-crystalline silicon wafer, during the fabricating a semiconductor device (Abstract, 0019). Peng indicates the following cleaning steps: cleaning the wafer with an oxidant solution for the first time, then rinsing the surface with HF liquid, then rinsing the surface with deionized water and finally cleaning the surface with an oxidant solution for the second time, wherein the oxidant solution is an ozone containing aqueous solution having a concentration of ozone between 15 and 30 ppm and wherein the concentration of HF is 0.5-2 %wt. Regarding the specific limitation of claim 1, reciting "thus obtaining a silicon wafer in which micro roughness thereof under spatial frequency of 20/  $\mu\text{m}$  is 0.3 to 1.5  $\text{nm}^3$  in terms of power spectrum density", since Peng teaches cleaning process with the steps, identical to those instantly claimed, the outcome of Peng's process is considered to be identical to the instantly recited. It is axiomatic that one who performs the steps of the known process must necessarily produce all of its advantages. Mere recitation of a newly discovered function or property, that is inherently possessed by things in the prior art **does not cause a claim** drawn to these things to distinguish over the prior art, consult *In Re* Leinoff v. Louis Milona & Sons, Inc. 220 USPQ 845 (CAFC 1984). Therefore, taking into consideration transitional phrase "consisting essentially of", recited by Applicants in claims 1 and 6, all the limitations of the instant claims are met by Peng.

### ***Response to Arguments***

7. Applicant's arguments filed 06/10/2005 have been fully considered but they are not persuasive. Applicants argue that the washing method of Peng, which includes

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oxidizing the silicon surface with ozonated water, rinsing the said surface with HF, rinsing the said surface with deionized water and again oxidizing the said surface with ozonated water, is different from the cleaning method required by claim 1, because the silicon surface is also cleaned with pure water before an oxidation treatment process with ozonized water. In order to support their statement Applicants are referring to the instant specification, page 9, lines 19-23; page 19, lines 4-16.

However, page 9, lines 19-23 recite that "if the wafer passes the cleaning process with pure water or the like before the oxidation treatment process with ozonized water, the silicon wafer... surface is made rough". While the indicated recitation provides for the rough surface if the step of rinsing with pure water is used, it does not contradict with the instant claims, which also teach micro roughness formation on the surface during the cleaning "consisting essentially of" recited steps. Furthermore, page 19, lines 12-16 recite that "it is **preferable** to carry out oxidation treatment with ozonized water without any cleaning treatment with pure water or the like **immediately after cleaning with pure water or the like**", thus, apparently, leaving the step of treatment with pure water as optional.

Therefore, Applicants fail to show that the presence of deionized water rinsing step of Peng materially affects the basic and novel characteristic(s)" of the claimed invention. If the Applicants contend that additional steps in the prior art are excluded by the recitation "consisting essentially of," Applicants has the burden of showing that the introduction of additional steps would materially change the characteristics of Applicants' invention", consult *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA

1964). See also Ex parte Hoffman, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989).

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "M. Kornakov", with a long horizontal stroke extending to the right.

Michael Kornakov  
Primary Examiner  
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08/15/2005